



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,177	05/29/2007	Mark Bischoff	3081.127US01	7730
24113 7590 01/21/2010 PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A. 4800 IDS CENTER 80 SOUTH 8TH STREET MINNEAPOLIS, MN 55402-2100				
EXAMINER				
LIPTIZ, JEFFREY BRIAN				
ART UNIT		PAPER NUMBER		
3769				
MAIL DATE		DELIVERY MODE		
01/21/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,177

Applicant(s)

BISCHOFF ET AL.

Examiner

JEFFREY B. LIPITZ

Art Unit

3769

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's amendment overcomes the objection to claim 12.

Applicant's arguments, filed August 6, 2009, with respect to the 112 First Paragraph rejections have been fully considered and are persuasive. The 112 First Paragraph rejections of claims 18 and 24 have been withdrawn.

Applicant's arguments with respect to the 112 Second Paragraph rejections have been fully considered but they are not persuasive. Applicant does not directly address some of Examiner's concerns.

Applicant asserts that non-sequential pulses are pulses that do not directly follow one another? What does that mean? Examiner is fully aware what the words sequential and consecutive mean; however, the use of either of these words renders the claim indefinite because *any pulse that comes at any time after a previous pulse* is both sequential and consecutive. If Applicant has a particular gap of time in mind that renders a pulse non-sequential, then that gap of time should be claimed or the term non-sequential should be defined by that gap of time.

Applicant discusses the possibility of setting a pulse frequency before a change in the pulse picking can be made. However, Applicant does NOT address whether the pulse frequency *must* be set before a change in the pulse picking device can be made?

Applicant also discusses the use of the term "frequency", as meaning either the pulse frequency of the scanner or the pulse repetition rate of the pulse generator. However, Applicant does NOT address the use of the phrase "selection frequency" in claims 18 and 24. If Applicant means frequency of the pulse generator, then that should

be written in the claims to clarify which frequency is meant. Currently, claim 13 recites the limitation that the selection frequency is changed by pulse picking device, which implies a third meaning of the term frequency such as a frequency that corresponds to the number of pulses in a time period that cannot generate optical breakthroughs. Examiner suggests amending the claims to more closely conform to the language of the specification, and more clearly express the intended use of the term "frequency".

The 112 Second Paragraph rejections have been maintained.

Applicant's arguments with regards to the 103 rejections have been fully considered but they are not persuasive.

Applicant asserts that Swinger does not disclose use of the beam intensity controller or pulse picking device (112) to render some but not all of the pulses ineffective or that the pulse picking device is even capable of treating some pulses differently than others. However, Swinger does teach precise control over each laser pulse (Column 17, Lines 40-49), which includes all of the pulses. Therefore, it is *capable* of treating some pulses differently than others. The system and individual elements thereof only must be *capable* of performing the functional language of the claims. If the functional language inherently requires additional or modified structure not taught by the prior art, than the claims are patentable over the prior art. There does not appear to be any need to add or modify elements of Swinger to perform the intended use of Applicant's invention. Furthermore, the shutter (120) of Swinger can also change or block or absorb the laser pulses so that they cannot generate optical breakthroughs. Swinger's shutter and beam intensity controller are sufficient to "change a laser pulse to so that is cannot generate an optical breakthrough". Applicant does not claim how the

laser pulse is changed. Therefore, the rejections of claims 12-18 have been maintained.

Regarding the method claims 19-24, Applicant asserts that Examiner has not addressed all claim limitations; however, Applicant fails to point out which limitations have not been addressed. The limitations of claims 19-21 recite the actions of the structure addressed in claims 12-14. Clearly, a source of pulsed laser radiation generates laser pulsed laser radiation, a deflecting device variably deflects the pulsed radiation to the target material and the pulse picking device changes selected laser pulses, as discussed in the rejections of claims 12-14. It is unclear why Applicant believes the claims as presented are patentable over the prior art.

Therefore, the prior art rejections have been maintained.

Furthermore, to further distinguish the method from the apparatus, Examiner has objected to claims 13, 14 and 18 for not further limiting the scope of the claims from which they depend. Claims 12 and 19 are rejected under 112 First because they are not enabled without a control device.

Claim Objections

Claims 13, 14 and 18 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. These claims recite functions of the pulse picking device, deflecting device and control device that do not further modify these elements or necessarily require a new element to perform the

claimed functions. Therefore, these claims do not further limit the scope of the claims from which they depend.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12 and 19 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The control device is critical or essential to the practice of the invention, but not included in the claims. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13, 18, 20 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. See explanation in the "Response to Arguments" section supra, and in the former NFOA.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swinger et al. (US 6,325,792), hereinafter Swinger.

Regarding claims 12-15, Swinger teaches a source of pulsed laser radiation (100; Column 17, Lines 1-15; Figure 6), a deflecting device or "deflectable mirrors" and tracking system (130) and beam location sensor (128; Column 17, Lines 30-40; Column 19, Lines 30-67; Column 20, Lines 1-20) for directing laser radiation into the material at different locations to generate optical breakthroughs, and a beam intensity controller or pulse picking device (112), and comprising a Pockels' cell with an adjacent polarizing filter. Although the reference does not specifically mention whether the pulse picking device (112) can change non-sequential pulses it does teach the precise control over each laser pulse (Column 17, Lines 40-49). If the pulse picking device is capable of controlling each and every pulse, then it is capable of controlling the first pulse in a sequence or any pulse thereafter. Therefore, the pulse picking device (112) is capable of selecting laser pulses such that only a remaining subset can cause optical breakthroughs. The shutter (120) is also capable of selecting pulses, wherein the non-selected pulses can cause optical breakthroughs.

Claims 19-21 are rejected as an obvious use of the modified Swinger reference. The method as claimed are obvious steps during the normal use and operation of the modified Swinger reference, since the apparatus includes all of the structural limitations as discussed supra. In other words, the steps as claimed are not germane to the issue of patentability over a prior art device itself, because to be entitled to weight in method claims, the recited structural limitations therein must affect the method in a manipulative sense, and not to amount to the mere claiming of a use of a particular structure. *Ex*

parte Pfeiffer, 1962. C.C. 408 (1961). It would have been obvious to use the pulse picking device to influence the selected laser pulses in such a way that they can no longer cause optical breakthroughs, as a safety control mechanism. If the deflecting speed and or pulse frequency became very high, then it would be obvious to reduce the intensity of pulses so that each one would not be capable of causing an optical breakthrough, because high deflection speeds/pulse frequencies result in a higher number of misdirected pulses. Furthermore, high deflection speeds/pulse frequencies can be used in conjunction with lower intensities because there are more pulses reaching the target tissue. Thus, an optical breakthrough may occur as a result of many low intensity / high frequency pulses, but would not be capable with one pulse of low intensity. This would be advantageous because high intensity pulses are more likely to cause thermal damage to adjacent tissue than do low intensity pulses.

Regarding claims 16, 17, 22 and 23, Swinger teaches a control device (114) that synchronously controls the pulse picking device (112) and the deflecting device (106,128,130 and unlabeled deflecting mirrors) to generate optical breakthroughs along a predetermined path (Column 17, 50-54; Column 19, Lines 44-64; Column 20, Lines 8-20; Figure 6).

Regarding claims 18 and 24 (as best understood), Swinger teaches control over the source of pulsed laser radiation (100), control over the pulse picking device (112) and monitoring of the beam intensity (Column 17, Lines 50-67, Column 18, Lines 1-9). Every pulse is precisely controlled by the pulse picking device (112) so that when the deflection speed approaches a high value, the pulse picking device (112) will alter the characteristics of the pulse (A discussion of the use of high frequencies is in Column 15,

Lines 40-54, Figure 3; Column 17, Lines 30-67; Column 18, Lines 1-9). If the pulse picking device decreases the intensity of the laser pulses so that there are fewer optical breakthroughs, then there will be fewer pulses that arrive at the deflecting mirrors (Column 20, Lines 22-34), since the laser light incident on the deflecting mirrors must first pass through the pulse picking device. Although using this approach to regulate the deflection speed is not specifically taught, the synchronous control of the pulse picking device, the laser and the deflecting device (128,130, and unlabeled deflecting mirrors) by the control unit (114) makes it obvious to one of ordinary skill in the art at the time the invention was made to use such a feedback method. If the actual deflection speed were left unchecked, control over the positioning and intensity of each pulse would decrease, leading to a higher possibility of a mistake.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY B. LIPITZ whose telephone number is (571)270-5612. The examiner can normally be reached on Monday to Thursday, 10 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry M. Johnson III can be reached on (571)272-4768. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEFFREY B LIPITZ/
Examiner, Art Unit 3769

/Henry M. Johnson, III/
Supervisory Patent Examiner, Art
Unit 3769